ISSUES IN CURRICULUM DEVELOPMENT ANDDECENTRALIZATION OF VOCATIONAL EDUCATION TO NATIONAL ECONOMIC GROWTH: THE CASE OF INDONESIA

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Abstract

ASEAN Economic Community (AEC) will be started next year 2015. ASEAN country members needbe ready toexchange, or even to compete their products or services. Skilled labor is essential to be possessed by all the country members to successfully participate in AEC. Vocational school is a strategic institution assigned to prepare its students to possess competence for work in certain occupation. Therefore, the curriculum of vocational education needs to be developed then consistently executed in such a way to gain expected skilled labors. This paper will cover two discussions. First, in macro level, how the development of vocational education curriculumrelevant to labor market as well as relevant to the national philosophy, and eight (8) National Education Standards.Second, in micro level,how the curriculum is to be implemented in school, especially in classroom and out ofclassroom settings. Furthermore, the roles and commitment of National and Local governments,in decentralization era, together with their stakeholders to support vocational education will also be analyzed. Summary as a conclusion will be provided at the end of this paper combined with recommendations especially for Government and people in business and industry.

Keywords: curriculum development, vocational education, decentralization, national economy growth.

1. Introduction

ASEAN Economic Community (AEC)that will be started next year (2015) has made Governmentof Indonesia (GOI) aware in responding the challenges. On April 1-2, 2014 GOI represented by Ministry of Education and Culture collaborated with Germany Ministry of Economic Collaboration and Development conducted a national conference involving Ministry of Workforce and Resettlement, Ministry of Industry, and National Board of Planning and Development. The theme of conference was "*Assuring the Quality of Technical and Vocational Education and Training(TVET)in Preparing AEC2015*". The conference attended by business and industry community representations, vocational education observers, and other relevant parties. The main objective of conference was to facilitate collaboration work in the development of TVET in the region [1].

Vice Ministry of Education and Cultural, Musliar Kasim, then stated in the conference that there were any problems need to be solved in relation to VTEC, e.g., shortage of skilled teachers, limited having industrial experiences for vocational students, and regulation harmonization of work training and workmarket. The conference emphasized that TVET is one main driver force to elevate labor skilled and mobility in the future time. The impact will increase productivity in business sector at the same time contribute to national economic development.

This paper will discusses relevant to the impact above with focus on curriculum development of vocational school, the roles of national and local government in decentralization era, and business-industry participation. Finally, this paper will discuss

the impact of vocational education to national and local economic growths.

2. Curriculum Development

Reference [2] defines that curriculum is *the sum of the learning activities and experiences that a student under the auspices or direction of the school.* The definition covers not only experiences and activities in formal curricula, but also social and sport activities covered in *co-curricular.* Ref. [2] emphasizes that these experiences have the power to make contributions to the student growth in ways that cannot be accomplished in classroom and laboratory settings.

Furthermore, it is explained that the foregoing concepts also support the notion that a curriculum should focus on the developing the whole person. It is not enough to have the curriculum include courses and experiences that are exclusively only related to vocational education. General studies are clearly a part of every curriculum as they serve to provide the student with a broad knowledge base both for life and for earning a living.

This curriculum development approach is in line with Dewey's philosophy [3] that emphasizes students have potencies and dynamically develop their potencies. School programs need to be democratized so that every student has a possibility to maximize his/her potencies regardless their social economy status.

Regarding Vocational Education, Ref. [4] describes that at least there are five approaches are commonly used to determine curriculum content. The five are Philosophy, Introspection, Functional, DACUM, and Task Analysis. Furthermore, it is explained that philosophy is a set of belief belongs to one or group as a basis of his/her attitude andaction.Historically, the thought of philosophers was used in determining curriculum content. It is also true in Indonesia.

National Philosophy of Indonesia is *Pancasila* (five principles) that consists of belief in the One and only God, just and civilized humanity, unity of Indonesia, democracy led by wisdom of deliberations among representatives, and the goal of social justice for the whole people of Indonesia.These five principles is mandatory content and have been accommodated by all National Curriculum used in Indonesia including the current Curriculum 2013.

The second approach in determining curriculum content is "Introspective". It means the content is determined by those who are directly involved in executing the curriculum. They are especially teachers, principals, school supervisors, and some administrators [4]. This approach is relatively better than the first one, however since the process is done only by the insider, therefore the product may not meet the needs of the users in this care people in business and industry. To overcome this shortage, certainly they need to involve business and industry representations and also expert from Technical and Vocational Education.

The third one is DACUM that stands for Developing A Curriculum [5]. This approach is a job occupational analysis performed by expert workers in the occupation. The philosophy of DACUM comprises three wise statements: (1) expert workers can describe and define their jobs more accurately than anyone else; (2) an effective way to define a job is to precisely describe the tasks that expert workers perform; and (3) all tasks, in order to be performed correctly, require certain knowledge, skills, tools, and worker behaviors**.**

Reference [5] explains the DACUM process for occupational analysis involves local men and women with reputations for being the "top performers" at their jobs, working on a short-term committee assignment with a qualified DACUM facilitator. Workers are recruited directly from business and industry. These workers become the Panel of Experts who collectively and cooperatively describes the occupation in the language of the occupation.

The Panel works under the guidance of a trained facilitator for two days to develop

the DACUM Research Chart. The chart contains a list of general areas of competence called *DUTIES* and the *TASKS* that define that duty. Brainstorming techniques are used to obtain the collective expertise and consensus of the Panel. As the Panel determines each task, it is written on a card. The cards are attached to the wall in front of the Panel. The completed chart is a graphic profile of the duties and tasks performed by successful workers in the occupation [5].

The panel also identifies the general knowledge and skills required of successful workers, the tools, equipment, supplies, and materials used, the important worker behaviors essential for success, and the future trends and concerns likely to cause job changes [5].

The fourth one is "Functional Approach". The two previous approaches can be classified as subjective approach since the content is mainly determined by the internal side. This fourth approach one can be categorized as an objective one. Curriculum content is determined by referring to functions of an occupation for which graduates will work.An example some functions in executing building construction: understanding the features and characteristics of the building; establishing networking with involved parties; calculating the cost; project management and quality control; and building maintenance. Then each functionis broken into activities. Some activities are classified into a certain competence. All competences are organized in sequence accompanied by knowledge, skills, attitudes, and tools and equipment needed as a basis in determining curriculum content.

The fifth approach in determining curriculum content is Task Analysis (TA). Ref. [6] describes that TA is the analysis of how a task is accomplished, including a detailed description of both manual and mental activities, task and element durations, task frequency, task allocation, task complexity, environmental conditions, necessary clothing and equipment, and any other unique factors involved in or required for one or more people to perform a given task [6]. Ref. [4] suggested that curricular developers need to differentiate among terminologies: job, duty, task, activity, operation, and steps. By knowing these sequent, it makes easier to do task analysis.

3. Indonesia 2013 Curriculum

In the case of Indonesia, the current curriculum isnamed "2013 Curriculum". It covers academic as well as technical and vocational education.

There is no explicitly official statement from Ministry of Education and Culture regarding development approach used in resulting 2013 Curriculum. Traditionally, the Minister of Education and Culture formed an expert team accompanied by working team. The team member share representations from Ministry of Education and Culture, especially from Center of Curriculum, universities, and relevant communities. Additional members for vocational education team are people from business and industries.

National Philosophy (*Pancasila*) is mandatory to be included in all curriculum levels. Approaches used in determining curriculum content of vocational education are mostly combination among Functional and Introspective. DACUM and Task Analysis approaches were mostly not exercised in this work.

Structurally, 2013 Curriculum for academic and vocational education consists of threecourse clusters: A, B, and C.Cluster A and Bare mandatory or core courses, while Cluster C is concentration. Cluster Acourses consist of Religious Education, Civics-*Pancasila,* National Language = Bahasa Indonesia Math, National History, and English. Cluster B courses consist of Culture & Arts, Physical Education &Sport, and Entrepreneurship. Cluster C for academic school are courses for academic concentration, while Cluster C for vocational school are courses for academic concentration as well as vocational concentration [7].

Credit-hour allocation for Cluster A plus Cluster B both for academic and vocational schools is equivalent, which is 24 hour/week. Cluster C for academic school during three years consecutively are 18, 20, 20 hours/week, while for vocational school are 24, 24, and 24 hours/week. Therefore, the total credit hours taken by vocational student for 3-year schooling is higher than those from academic student, which is 144 compared to 130. Following table illustrates the credit-hour comparison between academic and school schooling tracks [7].

Table1. Academic and Vocational Comparison on Core and Concentration Courses by hours/week.

Academic School (SMA) Vocational School (SMK)	School Year		
	1st	2nd	3rd
Core courses for SMA = SMK	24	24	24
Elective courses for:			
SMA (hrs./week)	18	20	20
SMK (hrs./week)	24	24	24
Total hrs./week for SMA/year	42	44	44
Total hrs./week for SMK/year	48	48	48
3-year total credit-hrs. for SMA			130
3-year total credit-hrs. for SMK			144

Based on Table 1.above, we can be confirmed that curriculum 2013 is an inclusive curriculum. The structure provides opportunity for vocational students not only to enhance their potencies through professional in a certain occupation but also to continue their academic study in higher education.

4. Decentralizationof Vocational Education

The forces of public governance reforms may be classified as follows: (1) international challenges and pressure; (2) changing role of modern government in the global economy; (3) mixed economy of public, private and non-profit sector interactions in the production and delivery of public services; (4) society's participation in governance processes, equity and ethics in governance, new models of public governance. Furthermore, the arguments for the decentralized governance are: (i) participation in political life, (ii) institutional openness and closeness to people, thereby increasing the democratic accountability, (iii) legitimacy of governance and (iv) freedom, devolution of authority powers and interaction between government bodies [8].

Reference [9] describes that there are at least nine impacts may be gained by exercising decentralization of vocational education: (1) improving human resource quality; (2) lowering number of youth unemployment; (3) providing employment for the citizen; (4) lowering burden in academic education path system;(5) raising interest of foreign investors; (6) assuring the improvement of earning and employment; (7) lowering the earning gap between the rich group and the poor one; (8) a vehicle for the development qualified technology works; (9) culture and tradition conservation.

In the case of Indonesia, staring the enactment of Law number 32/2004 on Local Government and Law number 33/2004 on financial balancing between Central and Local Government, officially management of vocational education has been decentralized to local government.

In the decentralization education era, local governments need to maximize the role social parties [10] in improving the quantity and quality of vocational education and trainings. The social parties are e.g., business and industry association, chamber of commerce, and other related parties.

Increasing number of study program and its specialization in vocational school and training need to be synchronize with the need of local labor market. Local government continuously need to survey on existing occupation spectrum as well as future spectrum. In respect this issue, local government should shift the paradigm from supply driven to demand driven. Do not

ignore the trends of supply-demand in many occupations at national, regional, and even global levels. Ignoring these trends, increasing the number even the quality of study programs (student) in vocational education will bear youth unemployment.

Local Governments need to enhance and facilitate their vocational schools and training institutions to intensify the course of Entrepreneurship. Vocational graduates ought to possess ability to be self-employed and provide employment for others. By doing this approach youth unemployment number might be lowered. To motivate graduates become entrepreneurs a stimulate loan as a basic capital in the business is essential. The load may bear from Education Office, Man Power Office, and other private sector.

Effective vocational schoolsin decentralization era context, mainly when the graduates work and contribute to the benefit of local government. It can happen when the graduates work matching with their specialization and be professional. Their career development in workplace run well with a good payment. One of the most importance requirements for effective vocational school is to have field experiences in business and industry.

Local Regulation that drive mutual collaboration between school and business and industry is a must. The regulation is to be formulatedby a collaborated working team among Local Education Office and business-industry representation (trade chamber, associations) andManpower Office. It is important to describe in the regulation that there is financial incentive for those who provide training for vocational students. The incentive may be in the form of e.g., CSR compensation, deductible tax, or a loan.

Local Planning Board as a think-tank of Local Government Office plays vital function to make vocational education and training become effective. The Board should have comprehensive and accurate data on education, then articulates the local development planning among relevant Offices as well as Education Office and business and industry. Mid and long project planning are vehicle to lead vocational education to be more effective as shown in the following figure [11].

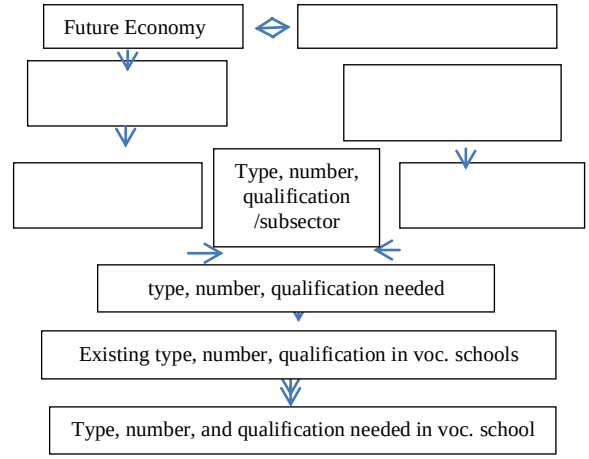

Figure.1 Supply-Demand Synchronizations Planning

Figure 1. illustrates the relation between planning and existing occupation in terms of type and number of occupations

5. National Economic Growth

Many studies [12], [13] have approved that Technical and Vocational Education contributes to economic growth. The later study states that "*empirical results confirming the important role of vocational school (SMK) in supporting regional economic growth in Indonesia"*. Ref. [14] also confirmed that: *"All countries invest in technical and vocationaleducation and training (TVET) – infact, correlations indicate that the higher thelevel of country income, generally the higherthe proportion of students enrolled in TVETInstitutions".*

A historical study done by Langthalerin 2013 in Germany [15] quests: "*What kind of Vocational Education is required for economic development?"* This study mention common problems raises to the vocational training sector in many countries. They are (1) missing link with the economy; (2) employers do not interest in providing traineeship; and (3) the fragmentation of vocational training.

Therefore, the answer of the requirement of vocational education that contribute to economic development is that vocational training is free of thoseproblems. The challenge is how to avoid them and fulfill the requirements? Following briefly discusses the three problems above.

First, missing links with the economy. It means education and training is conducted with out-dated curricula. Teachers in vocational schools and instructors in training institutions teach out of step with the economy's realneeds of business and industry. Occupation qualifications are often not recognized and are correspondinglynot very relevant to employment.

In the case of 2013 Curriculum, as little bit discussed earlier, the involvement of business and industry in determining vocational education curriculum contentis not clear. There is no publically confirmation that business and industry are involved in determining curriculum contents. Clearly DACUM approach was not used in determining the curriculum content.

Second, employers do not interest in providing traineeship.Some reasons, e.g., employer thinks the dollar return. Direct and indirect training costs decrease employers' willingness to provide training, and that employers are less willing to provide training the older the workers are.

Furthermore, governmental reimbursements do not affect employer-provided training. This indicates that governments need to consider which strategies they use to support human resource practices. Ref. [15] discover that workers' explicit interest in training stimulates employers' willingness to provide training. The study results suggest that training decisions are more complex than proposed by a human capital framework, because motivational factors of workers play a role. This implies that employers do not take their decision solely based on costs or benefits, but that workers can affect employers' behavior.

In the context of Indonesia, the Law number 13/2003 on Employment, Article 11 states that each worker has a right to improve his/her work competence and Article 12 states that each employer is responsible on improving work competence of his/her worker. However, the implementation of this law is not effective yet due to there is no one system in education and training. This law under umbrella Ministry of Manpower and Resettlement. There is no synchronization on training system between this Ministry and the Ministry of Education and Culture.

Third, the fragmentation of vocational training. The fragmentation applies both tothe administrative responsibility, which in many countriesis divided among various ministries and bodies, as well asto the absence of comprehensive systems. Instead thereis a coexistence of various forms of training, institutions,sponsors and individual measures, which extends from vocationaltraining schools as part of the formal educationsystem to various informal services all the way to formsof in-company vocational training [15].

Langthaler give an example on training fragmentation in West Africa, traditional teaching continues to be the major formof vocational training. It is not standardized, however, andhas no links with the formal education system. This means
training opens up employment options only in the informalsector.

In Indonesia, there is an effort to link between National Qualification Framework (KKNI) developed by Ministry of Education and Culture (MOEC) and National Work Competence Standard (SKKNI) developed by Ministry of Labor and Resettlement (MOLR). KKNI becomes the reference used by MOLR to articulate training design. Under SKKNI a trainee be able to accumulate his/her training credit hours and even recognized prior learning (RPL) then the credits are converted to KKNI level to get formal acknowledgment from MOEC. However, currently the conversion and implement system is under consolidated [16].

6. Lessons From Singapore's Experience

Most countries pronounce that Technical and Vocational Education and Training (TVET) is important, however they do not have commitment to drive TVET effectively. Contrarily, Singapore Governmenthave commitment to drive TVET effectively contribute national economy growth [17].In this respect, the Singapore Government believes in and has invested continuously and heavily in education and training, not only in the universities and polytechnics but especially so in vocational and technical education under the Institute of Technical Education (ITE).

Since independence in 1965 the Government has made close alignment between economic development and their educational policies and strategies. The Government leads the transformation of ITE through three economic phases into a world-class education institution as explain in the following description.

A "*Factor-Driven*" economy involving intensive labor in the 1960s-1970s, it progressed to an "*Investment-Driven*" economy, which was capital intensive in the 1980s-1990s and the "*Innovation-Driven*" economy powered by the needs of knowledge intensive industries in the 2000s. The three economic driven illustrated in the following figures [17].

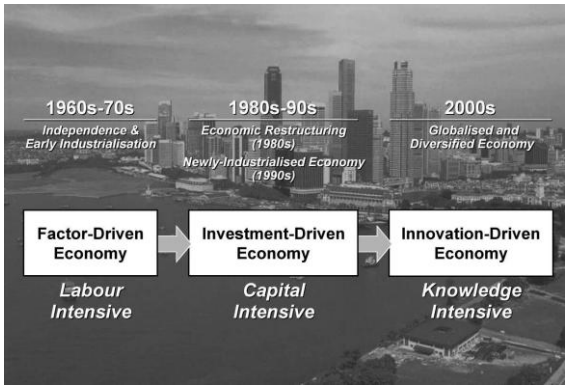

Figure 2: Phases of Singapore's Economic Development

First Phase-Labour-Intensive Economy (1960s-1970s)

In these early days of industrialization after Singapore's independence, the main challenge was to create enough jobs. The economic strategy shifted in 1968 from one of import substitution to one of rapid industrializationby attracting foreign investment for export-oriented and labor-intensive manufacturing. From the education and training perspective, the immediate task was to ensure that the workforce has the basic vocational and technical skills to support the labor-intensive manufacturing activities such as ship repairing, turning and fitting, sheet metal working, plumbing and radio and TV maintenance and repair.

With respect to TVET, the first vocational institute, the Singapore Vocational Institute (SVI), was established within the school system in 1964. With the increasing pace of industrialization, there was growing concern on how best to expedite and expand TVET to meet the technical and skilled manpower needs of new emerging industries. The mainstream of education remained largely academic. In 1968, 84 % of students in schools were enrolled in the "academic" stream.

Second Phase-Capital-Intensive Economy (1980s-1990s)

In 1979, the Government embarked on a major restructuring of the economy towards higher value-added, high technology and more capital-intensive industries. The new focus was the development of new industries such as petrochemicals, biotechnology, information technology as well as manufacturing services in testing, financing, warehousing and purchasing. To stay competitive through higher productivity, mechanization, automation and computerization of the industry were promoted. Once again, the education and training system was called upon to respond to the manpower needs of more capital-intensive industries [17].

Third Phase- Knowledge-Intensive Economy (2000s):

Moving forward into the 2000s, Singapore saw the need to increasingly develop into a globalised, entrepreneurial and diversified economy. While continuing to strengthen the higher-end manufacturing

activities, there was a clearer recognition of the importance of the service sector as another engine of economic growth. Concerted plans were formulated to attract and nurture new growth sectors such as the Biomedical Sciences, Info-Communications, Creativity Technology, Integrated Resorts and High-Value Engineering. *The response in the educational sphere was to position Singapore as an Education Hub by attracting foreign students and internationally renowned institutions to Singapore.*Local institutions would continue to seek quality and excellence in developing a first-class education at all levels.

In regards the success of ITE (Institute of Technical Education) and becomes a well world known institution, the following some key features [17].

1) A Clear Mission, with a clear focus on its "Mission, Vision and Values", ITE has developed an inner spirit of commitment and teamwork in always asking how it can better serve, add value and meet the needs and expectations of students and stakeholders.
2) A Unique Brand of an ITE Education: Called "Hands-on, Minds-on and Hearts-on", this is a holistic College education that provides the motivation, assists student learning and nurtures all-rounded graduates.
3) A modern Campus Infrastructure: ITE‟ s campuses are modern and well-equipped with extensive workshops, an IT-rich web-based environment, student support services and other sports and arts facilities.
4) A Rigorous Curriculum Development Process: Called "Developing A Curriculum" or "DACUM" Process, the skills standards and competencies to be acquired by students are derived directly in consultation with the major sectors of business and industry.
5) A Process-Oriented Pedagogic Model: Called "Plan, Explore, Practice and Perform" or "PEPP" Model, the aim is to develop "thinking doers", i.e., graduates who can apply what they have learned and put them into practice. The focus is on acquiring the three key competencies, i.e., technical, methodological and social in an experiential learning environment.
6) Close Partnership With Industry: Built on the mutual needs and benefits since the early days of Singapore's efforts in industrialization, this partnership has further strengthened in terms of levels and quality of engagements.
7) Branding – a New ITE image: The effort to communicate and rebrand the ITE Image was an integral part of its journey. Supported by a comprehensive marketing and rebranding program, there was gradual turnaround in its public perception and image. Over a period of nine years, from 1997 to 2006, the image of ITE had significantly improved by 76%.

7. Summary and Recommendations

There is no one "universal" model that fit to establish and develop any TVET in anyone country. Each country will ultimately need to carefully assess and decide on the "TVET system" that it considers most relevant in meeting its national strategic goals. But, underlying a successful model are also some fundamental policies and principles.

1) There is the need to ensure that the TVET system is closely linked to the local economic development agenda. National economic plan and global economic trends should be also considered.
2) Curriculum content mast be developed together with stakeholders, especially people from business and industry.
3) Decentralization is chance for Local Government to align economic development with vocational education and training polices to bear economic growth. Local Government to execute the alignment police above.
4) The development of competences, in terms of variety and student number, in TVET must match the labor market demand (*demand driven*).

5) School-business/industry partnership must base on mutual-benefit collaboration, e.g., rewards need to be offered for those who provide traineeship. Deductible profit tax may become one short of reward.

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